1) $\frac{x}{4} + 3 - \frac{x+3}{2} = 1$

$\frac{x}{4} + \frac{12}{4} - \frac{2x+6}{4} = \frac{4}{4}$

$x + 12 - 2x - 6 = 4$

$x + 2x = 4 - 12 + 6$

$3x = -2$

$\boxed{x = \frac{-2}{3}}$

2) $\frac{1}{8}(2x+4) - \frac{2}{3}(2x+6) + x = -4$

$\frac{2x+4}{8} - \frac{4x+12}{3} + x = 4$

$\frac{6x+12}{24} - \frac{12x+96}{24} + \frac{24x}{24} = \frac{96}{24}$

$6x + 12 - 12x - 96 + 24x = 96$

$6x - 12x + 24x = 96 + 96 - 12$

$18x = 180$

$x = \frac{180}{18}$

$\boxed{x = 10}$

3) $\frac{x-2}{3} - \frac{x-3}{2} = \frac{4-2x}{5}$

$\frac{10x-20}{30} - \frac{15x-45}{30} = \frac{24-12x}{30}$

$10x - 20 - 15x + 45 = 24 - 12x$

$10x - 15x + 12x = 24 + 20 - 45$

$7x = -3$

$\boxed{x = \frac{-3}{7}}$

4) $\frac{3x+7}{2} - \frac{1-4x}{4} = \frac{1-x}{6} - \frac{9+x}{3}$

$m.c.m(2,4,6,3) = 2^2 \cdot 3 = \underline{12}$

2^2 $2 \cdot 3$

$\frac{18x+42}{12} - \frac{3-12x}{12} = \frac{2-x}{12} - \frac{36+4x}{12}$

$18x+42-3+12x = 2-x-36-4x$

$18x+12x+4x+x = 2-36-42+3$

$35x = -73$

$\boxed{x = \frac{-73}{35}}$